IN THE CLAIMS

Please replace any previous listing of the claims with the following replacement listing of the claims:

Replacement Listing of the Claims

1. (CURRENTLY AMENDED) A method for enforcing a life cycle process in a source control system, comprising:

providing a check-in function to check-in at least one object of a control strategy for a process control system to said source control system;

providing a check-out function to check said object out of said source control system;

receiving from a user a plurality of user-defined qualification states and a plurality of user-defined state transitions between the plurality of user defined qualification states of said life cycle process;

performing said life cycle process on said object of a control strategy for a process control system by subjecting said object when checked out to said plurality of user-defined qualification states, each user-defined qualification state having attributes;

providing a change state function for a user to change a current one of said user-defined qualification states to a next one of said user-defined qualification states, said change state function verifying compliance with said user-defined state transitions; and

providing version control for said object in said source control system.

2. (CANCELED)

3. (ORIGINAL) The method according to claim 1, wherein said attributes include a fallback state.

4. (ORIGINAL) The method according to claim 1, further comprising:
receiving user-defined security for said user-defined state transitions.

5. (ORIGINAL) The method according to claim 4, wherein said user-defined security includes electronic signatures.

6. (ORIGINAL) The method according to claim 4, wherein said user-defined security includes which users have permission to make which state transitions.

7. (CANCELED)

8. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein said attributes include whether said control strategy is loadable to a controller.

9. (CURRENTLY AMENDED) The method according to claim 1, wherein receiving said user-defined life cycle process having said plurality of user-defined qualification states, each user-defined qualification state having attributes is performed through a user interface having an editable table, said table having state names as rows and attributes as columns and having cells indicating values for said attributes.

10. (CURRENTLY AMENDED) The method according to claim 6, wherein receiving user-defined state transitions between said plurality of user-defined qualification states is performed through a user interface having an editable table, said table having state names as rows and column and having cells indicating which users have permission to make which state transitions.

11. (CURRENTLY AMENDED) A computer-readable medium having executable instructions stored thereon to perform a method in a life cycle process of determining permissions for actions with an object of a control strategy for a

process control system based on a user defined state of said object, said method comprising:

receiving from said user a plurality of definitions of a plurality of user-defined qualification states and a plurality of user- defined state transitions between the plurality of user-defined qualification states of said life cycle process;

performing said life cycle process on said object of a control strategy for a process control system by subjecting said object to said plurality of user-defined qualification states;

receiving a request to perform one of said actions with said object;

determining whether said object has ever been checked-in to a source control system;

determining whether said object is currently checked-in;

retrieving from said plurality of definitions a definition of said user-defined qualification state of said object that corresponds to said action;

determining from said definition whether said action is permissible in said state; and

providing a permission status to perform or not perform said action with said object.

12. (CURRENTLY AMENDED) A computer readable medium having executable instructions stored thereon to perform a method comprising:

receiving from a user a plurality of user defined qualification states and a plurality of user-defined state transitions between the plurality of user-defined qualification states of a life cycle process;

receiving a request to make a user defined state transition from one of said user-defined qualification states to a next one of said user-defined qualification states for an object from a user;

performing a life cycle process on an object of a control strategy for a process control system by subjecting said object to said plurality of user-defined qualification states;

determining whether said object is checked-in;

determining whether said user has permission to make said state transition based on a user-defined state transition model that comprises restrictions and permissions for said user defined state transitions;

permitting said state transition, if said user has permission; and

providing a state transition status.

13. (CURRENTLY AMENDED) A computer readable medium having executable instructions stored thereon to perform a method of qualifying an object of a control strategy for a process control system pursuant to a life cycle process, said method comprising:

receiving from a user a plurality of user- defined qualification states and a plurality of user-defined state transitions between the plurality of user-defined qualification states of a life cycle process;

performing said life cycle process on said object of a control strategy for a process control system by subjecting said object to said plurality of user-defined qualification states;

validating a user defined state transition from a current user-defined qualification state to a next user-defined qualification state of ~~a~~ said plurality of user-defined qualification states by:

determining whether said next user-defined qualification state in a state transition request from a user is allowed from said current user-defined qualification state in said user-defined state transition request based on said user-defined transition restrictions;

determining whether said user has permission to make said user-defined state transition based on said user-defined transition restrictions;

determining whether said state transition has a restricted signing requirement and, if so, verifying that said restricted signing requirement is met; and

providing a state transition status.

14. (CANCELED)

15. (CURRENTLY AMENDED) A computer readable medium having executable instructions stored thereon to perform a method of validating a user-defined state transition of a life cycle process in a source control system, said method comprising:

receiving from a user a plurality of user-defined qualification states and a plurality of user-defined state transitions between the plurality of user-defined qualification states of a life cycle process;

performing said life cycle process on an object of a control strategy for a process control system by subjecting said object to said plurality of user-defined qualification states;

determining whether a current user-defined state transition in a state transition request for an object from a user requires an electronic signature based on user-defined transition restrictions of said life cycle process;

determining whether a previous user-defined state transition for said object required a previous electronic signature, if said current user-defined state transition requires a current electronic signature;

allowing said current user-defined state transition only if said previous electronic signature is different than said current electronic signature; and

providing a validation status.

16. (CURRENTLY AMENDED) The computer readable medium of claim 11, further comprising:

determining a new state for a version of said object upon check-in by:

determining whether said version of said object is being checked-in for a first time;

retrieving a first fallback user-defined qualification state from said plurality of user-defined qualification states for a first pre-defined user-defined qualification state, if said version of said object is being checked-in

for said first time, wherein said fallback user-defined qualification state is a life cycle stage of said qualification process; and

providing said first fallback user-defined qualification state, if said object is being checked-in for said first time.

17. (CURRENTLY AMENDED) The computer readable medium according to claim 16, comprising:

retrieving from said user a current user-defined qualification state for a current version of said object, if said object is not being checked-in for said first time;

retrieving a current fallback user-defined qualification state for said current user-defined qualification state of said object, if said object is not being checked-in for said first time; and

providing said current fallback user-defined qualification state, if said object is not being checked-in for said first time.

18. (CURRENTLY AMENDED) A computer readable medium having executable instructions stored thereon to perform a method for qualifying a control strategy for a process control system comprising:

receiving from a user a plurality of user- defined qualification states and a plurality of user-defined state transitions between the plurality of user-defined qualification states of a life cycle process;

processing an addition of a new user-defined qualification state to said a plurality of user-defined qualification states by:

receiving a definition of said new user-defined qualification state from a user, said definition including a name and a fallback user-defined qualification state, wherein said fallback user-defined qualification state is a life cycle stage of a qualification process, and wherein said new user-defined qualification state comprises an attribute of whether said control strategy is loadable to a controller of said process control system;

determining whether said name is unique among existing user-defined qualification state definitions of said plurality of user-defined qualification states;

validating said fallback user-defined qualification state; and

adding said definition to a source control system, only if said name is unique and said fallback user-defined qualification state is valid.

19. (ORIGINAL) The computer readable medium according to claim 18, wherein said definition includes a restricted signing requirement and further comprising:

validating said restricted signing requirement; and

wherein said adding said definition to said source control system is performed on an additional condition of whether said restricted signing requirement is valid.

20. (ORIGINAL) The computer readable medium according to claim 18, further comprising:

determining whether said user has a privilege to edit said definition; and

wherein said adding said definition to said source control system is performed on an additional condition of whether said user has said privilege.

21. (CURRENTLY AMENDED) A computer readable medium having executable instructions stored thereon to perform a method for qualifying a control strategy for a process control system comprising:

receiving from a user a plurality of user-defined qualification states of a user-defined qualification process for said control strategy;

processing a modification of a qualification state of said plurality of said user-defined qualification states of said user-defined qualification process by:

receiving a modified definition of said user-defined qualification state from a user, said modified definition including a name and a fallback user-defined qualification state, wherein said fallback user-defined

qualification state is a life cycle stage of said qualification process, and wherein said user-defined qualification state for which said modified definition was received comprises an attribute of whether said control strategy is loadable to a controller of said process control system;

determining whether said name is unique among existing user defined qualification state definitions;

validating said fallback user-defined qualification state; and

updating said modified definition in a source control system, only if said name is unique and said fallback user-defined qualification state is valid.

22. (ORIGINAL) The computer readable medium according to claim 21, wherein said definition includes a restricted signing requirement and further comprising:

validating said restricted signing requirement; and

wherein said updating said modified definition in said source control system is performed on an additional condition of whether said restricted signing requirement is valid.

23. (ORIGINAL) The computer readable medium according to claim 21, further comprising:

determining whether said user has a privilege to edit said definition; and

wherein said updating said modified definition in said source control system is performed on an additional condition of whether said user has said privilege.

24. (CURRENTLY AMENDED) A computer readable medium having executable instructions stored thereon to perform a method for qualifying a control strategy for a process control system comprising:

receiving from a user a plurality of user-defined qualification states and a plurality of user-defined state transitions between the plurality of user-defined

qualification states of a life cycle process of a source control system, and wherein at least one of said user-defined qualification states comprises an attribute of whether said control strategy is loadable to a controller of said process control system;

processing ~~the~~ a deletion of a user-defined qualification state of said plurality of user-defined qualification states in said life cycle process of said source control system by:

receiving a request to delete a user-defined qualification state definition for said user-defined qualification state from a user;

determining whether said user-defined qualification state definition is referenced by any other user-defined qualification state definition in said source control system;

determining whether any objects in said source control system have a current user-defined qualification state equal to said user-defined qualification state;

deleting said user-defined qualification state definition from said source control system, only if said user-defined qualification state definition is not referenced by any other user-defined qualification state definition in said source control system and no objects in said source control system have said current user-defined qualification state equal to said user-defined qualification state.

25. (ORIGINAL) The computer readable medium according to claim 24, further comprising:

determining whether said user has a privilege to delete said definition; and

wherein said deleting said state definition from said source control system is performed on an additional condition of whether said user has said privilege.

26. (CURRENTLY AMENDED) A source control system for a process control system, comprising:

a processor;

a life cycle process component executable on said processor to receive from a user a plurality of user-defined life cycle qualification states and to enforce compliance with said user-defined life cycle qualification states for at least one object of a control strategy of a plurality of devices of said process control system, wherein said life cycle process component subjects said object to said user-defined life cycle qualification states;

a version control component executable on said processor to associate one or more version numbers with said object;

a state configuration component executable on said processor to receive state information from a user for each user-defined life cycle qualification state; and

a controller in communication with said processor via a network to be loaded with said object to provide process control of said plurality of devices according to said control strategy when one of said life cycle qualification states qualifies said object for loading to said controller.

27. (PREVIOUSLY PRESENTED) The system according to claim 26, further comprising:

another processor to back-up said processor.

28. (Canceled)

29. (PREVIOUSLY PRESENTED) The system according to claim 26, wherein said state information includes a state name and an indication of whether load to controller is allowed from that state.

30. (CURRENTLY AMENDED) The system according to claim 26, wherein said state information includes a fallback user-defined life cycle qualification state.

31. (PREVIOUSLY PRESENTED) The system according to claim 26, wherein said state information includes an indication of whether restricted signing is needed.

32. (PREVIOUSLY PRESENTED) The system according to claim 26, wherein said state configuration component provides editing functions for said state information.

33. (ORIGINAL) The system according to claim 26, further comprising:

a state transition component executable on said processor to receive state transition configuration requirements from a user.

34. (ORIGINAL) The system according to claim 33, wherein said state transition configuration requirements include which users have permission to make particular state transitions.

35. (ORIGINAL) The system according to claim 33, wherein said state transition configuration requirements include an indication of whether an electronic signature is needed to make particular state transitions.

36. (ORIGINAL) The system according to claim 26, wherein said version control component provides check-in and check-out functions.

37. (ORIGINAL) The system according to claim 26, further comprising:

a change qualification state component to process a qualification state transition request from a user.

38. (CURRENTLY AMENDED) The method according to claim 8, wherein said user-defined qualification states comprise a state of testing, and wherein a user requests one of said user-defined state transitions to said state of testing for testing said object loaded into said controller.